

## Drug Eliminates Parasite That Causes Babesiosis in Horses

Equine babesiosis is caused by the blood parasites *Babesia caballi* or *B. (Theileria) equi*, both of which are transmitted by ticks. U.S. veterinarians currently use the drug imidocarb dipropionate to treat diseases like Texas fever—also known as cattle fever or babesiosis—in cattle. Researchers found that a relatively high dose of the drug eliminated *B. caballi* in horses and left the horses incapable of transmitting babesiosis. Though the high dose of the drug is generally well tolerated by horses, side effects include stomach upset and diarrhea.

In the United States, babesiosis is considered a foreign disease in horses, though it is common in nearby locales, including the U.S. territory of Puerto Rico. It is important to ensure complete parasite elimination, because infected horses that appear healthy can still transmit the disease. If approved for use in the United States, imidocarb dipropionate would offer a humane way to clear horses of *B. caballi* and potentially allow them to enter or remain in the country. *Donald P. Knowles, Animal Diseases Research Unit, Pullman, WA 99164-6630; (509) 335-6022, don.knowles@ars.usda.gov.*

## Researchers Study Effect of Cinnamon Compounds on Brain Cells

When strokes or other traumatic injuries block blood flow to the brain, it can lead to fluid accumulation within brain cells or in blood vessels around the brain cells. Researchers have now found that compounds from cinnamon extracts can protect some brain cells from this type of fluid accumulation.

The scientists placed isolated glial cells, which do not carry nerve impulses but still provide essential neural support, in culture and then deprived them of oxygen and glucose for 5 hours. The cells exhibited a 40-percent decline in their membrane potential, which indicates how effectively nutrients and fluids are transported across

cell membranes. After the same cells were exposed to a cinnamon extract, they regained some of the membrane potential that had been lost. In addition, the exposed cells did not show any increased fluid accumulation after the exposure to the extract, while control cells that had not been exposed continued to accumulate fluid throughout the observation period.

Further studies will be needed to determine whether cinnamon compound extracts could be helpful in treating brain trauma injuries. *Richard Anderson and Marilyn Polansky, USDA-ARS Diet, Genomics, and Immunology Laboratory, Beltsville, MD 20705; (301) 504-8091 ext. 277 [Anderson], (301) 504-9873 ext. 275 [Polansky], richard.anderson@ars.usda.gov, marilyn.polansky@ars.usda.gov.*

## Springtime Sheep Grazing Helps Control Leafy Spurge

Using grazing sheep to control pasture weeds and promote desirable grasses can be more cost effective than applying herbicides and replanting pastures. Researchers used clipping treatments that mimicked grazing by sheep to study how seasonal

grazing affects pasture plant communities. Results indicated that a few years of light springtime grazing can help plant communities recover after they have been infested with leafy spurge.

When leafy spurge first germinates in the spring, it draws on carbohydrates stored in the roots to support its growth. But defoliation stress prompts tannin production, which could explain why grazing triggers an eventual decline in leafy spurge levels—the carbohydrates used for tannin production are no longer available to support new growth. So even though grazing animals often avoid plants with higher tannin levels, this defensive response by leafy spurge also reduces its foliage output, which may in turn impede long-term survival. *Matthew J. Rinella, USDA-ARS Fort Keogh Livestock and Range Research Laboratory, Miles City, MT 59301-4016; (406) 874-8232, matt.rinella@ars.usda.gov.*

## Food "Tattoos": An Alternative to Labels for Identifying Fruit

Technology called "laser etching," developed in part by ARS researchers, uses lasers to "tattoo" produce and could someday replace current labeling practices. A carbon dioxide laser beam is used to etch information into the first few outer cells of the peel on grapefruit, creating a mark that can't be peeled off, washed off, or altered in any way.

The tiny holes etched into the grapefruit peel are effectively sealed by the carbon dioxide, which prevents decay and entry by pathogens, but a coating of wax can further protect against water loss and pathogen entry. The original testing was conducted on grapefruit and has now been extended to include other citrus fruits, tomatoes, and avocados. The U.S. Food and Drug Administration is currently reviewing its application for commercial use. *Jan Narciso, Citrus and Subtropical Products Research Laboratory, Winter Haven, FL 33881; (863) 293-4133 ext. 119, jan.narciso@ars.usda.gov.*



Leafy spurge, *Euphorbia esula*, in blossom.